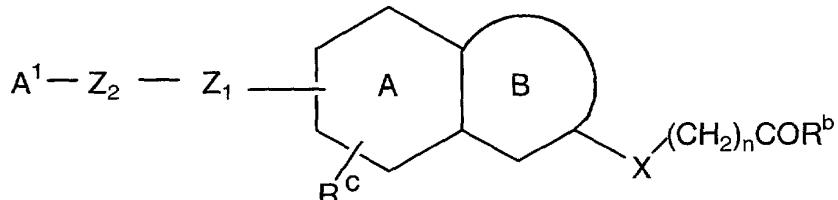


What is claimed is:

1. A compound of the formula I

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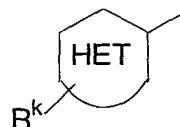


I

wherein

10

A^1 is a 5-9 membered monocyclic or 7-12 membered polycyclic heterocycle of the formula

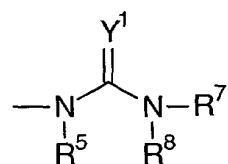


15

containing at least one nitrogen atom and 0 to 5 heteroatoms or groups selected from O, N, S, SO_2 or CO; optionally saturated or unsaturated; optionally substituted by one or more R^k selected from the group consisting of hydroxy, alkyl, alkoxy, alkoxy-alkyl, thioalkyl, haloalkyl, cyano, amino, alkylamino, halogen, acylamino, sulfonamide and -COR wherein R is hydroxy, alkoxy, alkyl or amino;

20

or A^1 is



25

wherein Y^1 is selected from the group consisting of $N-R^2$, O, and S;

5 R^2 is selected from the group consisting of H; alkyl; aryl; hydroxy; alkoxy; cyano; alkenyl; alkynyl; amido; alkylcarbonyl; arylcarbonyl; alkoxy carbonyl; aryloxycarbonyl; haloalkylcarbonyl; haloalkoxy carbonyl; alkylthiocarbonyl; arylthiocarbonyl; acyloxymethoxy carbonyl;

10 R^2 taken together with R^7 forms a 4-12 membered dinitrogen containing heterocycle optionally substituted with one or more substituent selected from the group consisting of lower alkyl, thioalkyl, alkylamino, hydroxy, keto, alkoxy, halo, phenyl, amino, carboxyl or carboxyl ester, and fused phenyl;

15 or R^2 taken together with R^7 forms a 4-12 membered heterocycle containing one or more heteroatom selected from O, N and S optionally unsaturated;

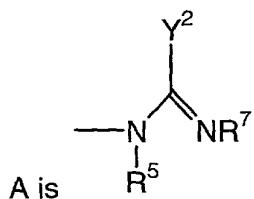
20 or R^2 taken together with R^7 forms a 5 membered heteroaromatic ring fused with a aryl or heteroaryl ring;

25 R^7 (when not taken together with R^2) and R^8 are independently selected from the group consisting of H; alkyl; alkenyl; alkynyl; aralkyl; amino; alkylamino; hydroxy; alkoxy; arylamino; amido, alkylcarbonyl, arylcarbonyl; alkoxy carbonyl; aryloxy; aryloxycarbonyl; haloalkylcarbonyl; haloalkoxy carbonyl; alkylthiocarbonyl; arylthiocarbonyl; acyloxymethoxycarbonyl; cycloalkyl; bicycloalkyl; aryl; acyl; benzoyl;

30 or NR^7 and R^8 taken together form a 4-12 membered mononitrogen containing monocyclic or bicyclic ring optionally substituted with one or more substituent selected from lower alkyl, carboxyl derivatives, aryl or hydroxy and wherein said ring contains 0-1 heteroatom, selected from the group consisting of O, N and S;

R^5 is selected from the group consisting of H, and alkyl;

or



5

wherein Y^2 is selected from the group consisting of alkyl; cycloalkyl; bicycloalkyl; aryl; monocyclic heterocycles;

10 Z_1 is selected from the group consisting of CH_2 , O, CH_2O , NH, CO, S, SO, $CH(OH)$ and SO_2 ;

15 Z_2 is a 1-5 carbon linker optionally containing one or more heteroatom selected from the group consisting of O, S and N; alternatively $Z_1 - Z_2$ may further contain a carboxamide, sulfone, sulfonamide, alkenyl, alkynyl, or acyl group; wherein the carbon and nitrogen atoms of $Z_1 - Z_2$ are optionally substituted by alkyl, alkoxy, thioalkyl, alkylsulfone, aryl, alkoxyalkyl, alkylamino, heteroaryl, hydroxy, alkenyl, alkynyl, carboxyalkyl, halogen, haloalkyl or acylamino;

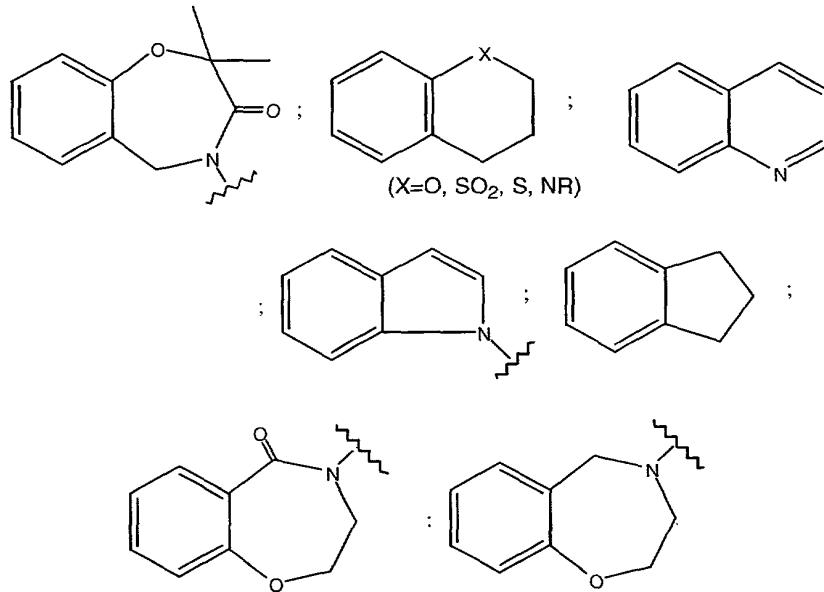
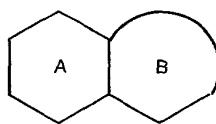
20 is an integer 0, 1 or 2;

25 R^c is selected from the group consisting of hydrogen; alkyl; halogen, hydroxy, nitro, alkoxy, amino, haloalkyl, aryl, heteroaryl, alkoxyalkyl, aminoalkyl, hydroxyalkyl, thioalkyl, alkylamino, arylamino, alkylsulfonylamino, acyl, acylamino, sulfonyl, sulfonamide, allyl, alkenyl, methylenedioxy, ethylenedioxy, alkynyl, alkynylalkyl, carboxy, alkoxycarbonyl, carboxamido, cyano, and $-(CH_2)_n-COR$ wherein n is 0-2 and R is selected from hydroxy, alkoxy, alkyl and amino;

X is selected from the group consisting of -O-, CO, SO₂, NR^m and (CHR^p)_n; wherein R^p and R^m are H or alkyl, n is 0-2;

5 R^b is $X_3 - R^h$ wherein X_3 is selected from the group consisting of O, S and NR^i wherein R^h and R^i are independently selected from the group consisting of H, alkyl, acyl, aryl, aralkyl and alkoxyalkyl; and

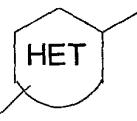
10 consisting of



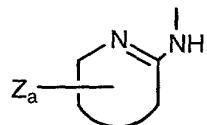
all optionally substituted and bonded to X and Z₁ at any position;

15

and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

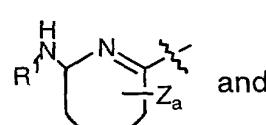


2. A compound according to Claim 1 wherein R^k is selected from the group consisting of

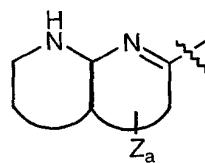


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B2



B3



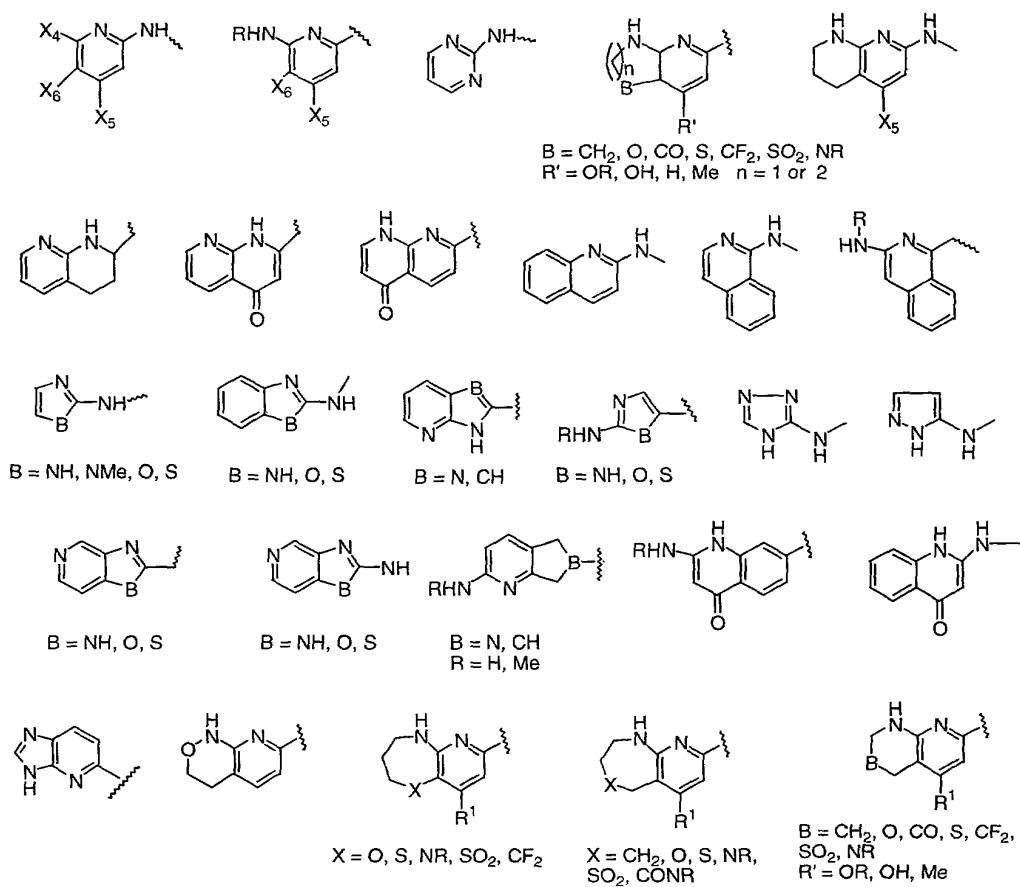
B4

wherein Z_a is H, alkyl, alkoxy, hydroxy, amine, alkylamine, dialkylamine, carboxyl, alkoxy carbonyl, hydroxyalkyl, halogen or haloalkyl and R^1 is H, alkyl, alkoxyalkyl, acyl, haloalkyl or alkoxy carbonyl, and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.



3. A compound according to claim 1 wherein R^k is selected from the group consisting of

15



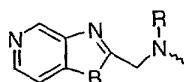
wherein X_4 and X_5 are selected from the group consisting of H, alkyl,

5 branched alkyl, alkylamino, alkoxyalkylamino, haloalkyl, thioalkyl, halogen, amino, alkoxy, aryloxy, alkoxyalkyl, hydroxy, cyano, acylaminomethyl, methoxy, amine, methylamine, trifluoromethyl, dimethyl-amine, hydroxy, chloro, bromo, fluoro and cyano;
10 X_6 is H, alkyl, hydroxy, halogen, alkoxy and haloalkyl; the pyridyl ring can be fused with a 4 - 8 membered ring, optionally saturated or unsaturated, and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

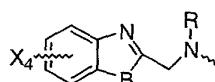
4. A compound according to claim 1 wherein when Z_1 is CO or SO_2 ,
15 and the linkage A^1 - Z_2 is a heterocycle derived ring system selected
from the group consisting of pyridine, imidazole, thiazole, oxazole,
benzimidazole, and imidazopyridine, and pharmaceutically

acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

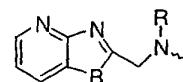
5. A compound according to claim 4 wherein the heterocycle derived ring systems for A¹-Z₂ are selected from the group consisting of:



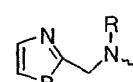
B = NH, O, S
R = H, Me



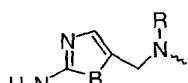
B = NH, O, S
R = H, Me



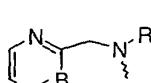
B = NH, O, S
R = H, Me



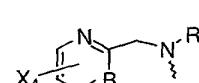
B = NH, O, S
R = H, Me



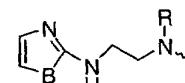
B = NH, O, S
R = H, Me



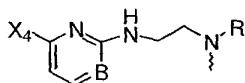
B = N, CH
R = H, Me



B = N, CH
R = H, Me



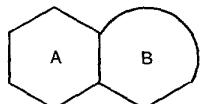
B = NH, O, S
R = H, Me



B = N, CH
R = H, Me

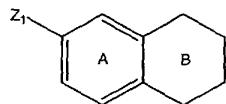
10 and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

6. A compound according to Claim 1 wherein the ring A-B



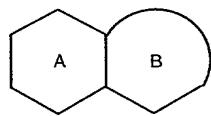
is a tetrahydronaphthalene

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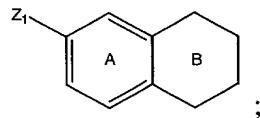


and Z₁ is S, and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

7. A compound according to claim 1, wherein the ring A-B



is a tetrahydronaphthalene



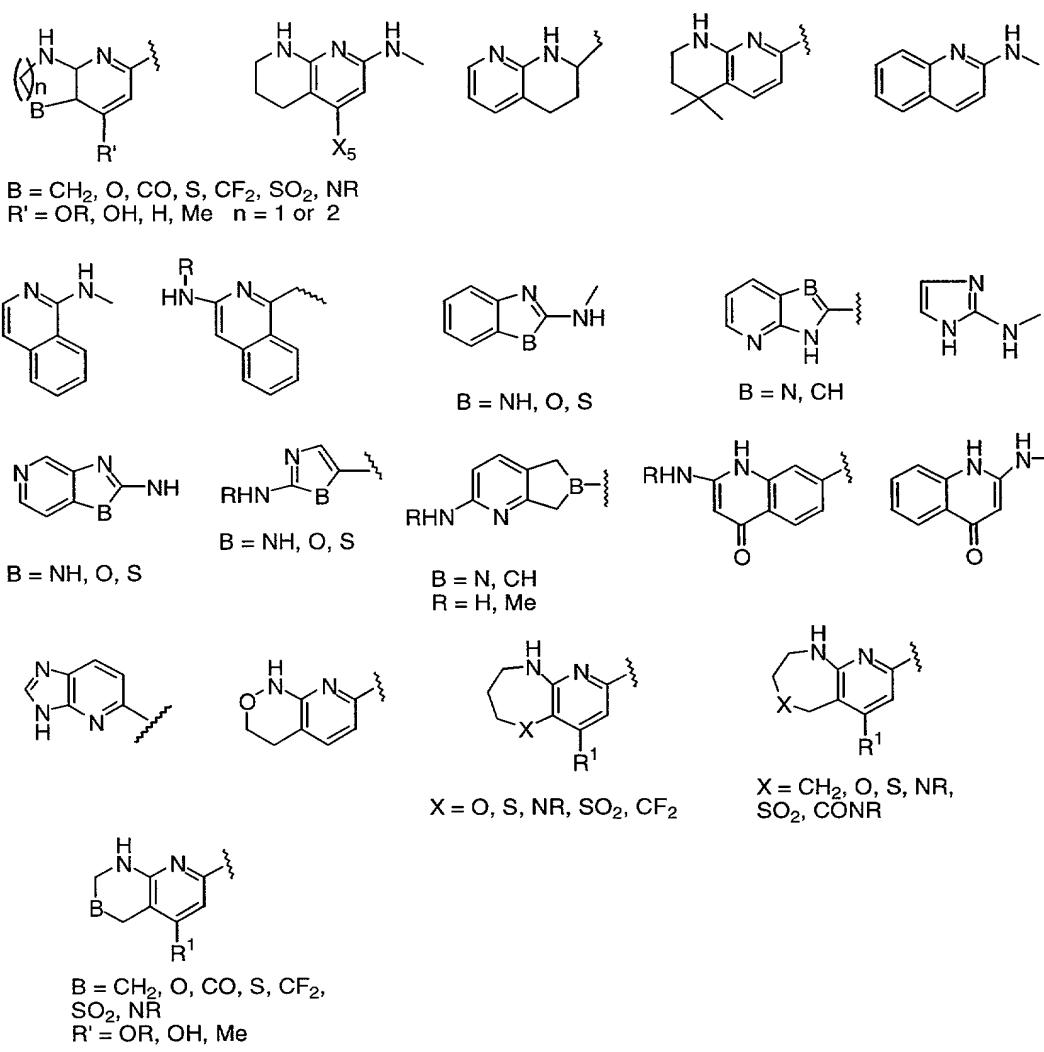
5

;

Z_1 is a CH_2 ;

A^1 is selected from the group consisting of:

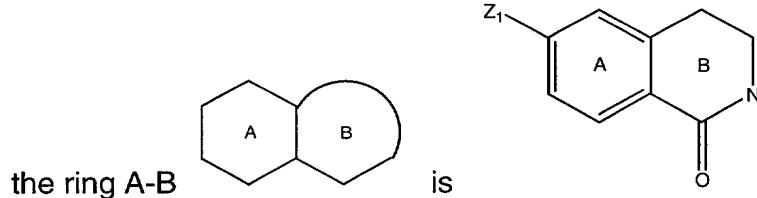
10



and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

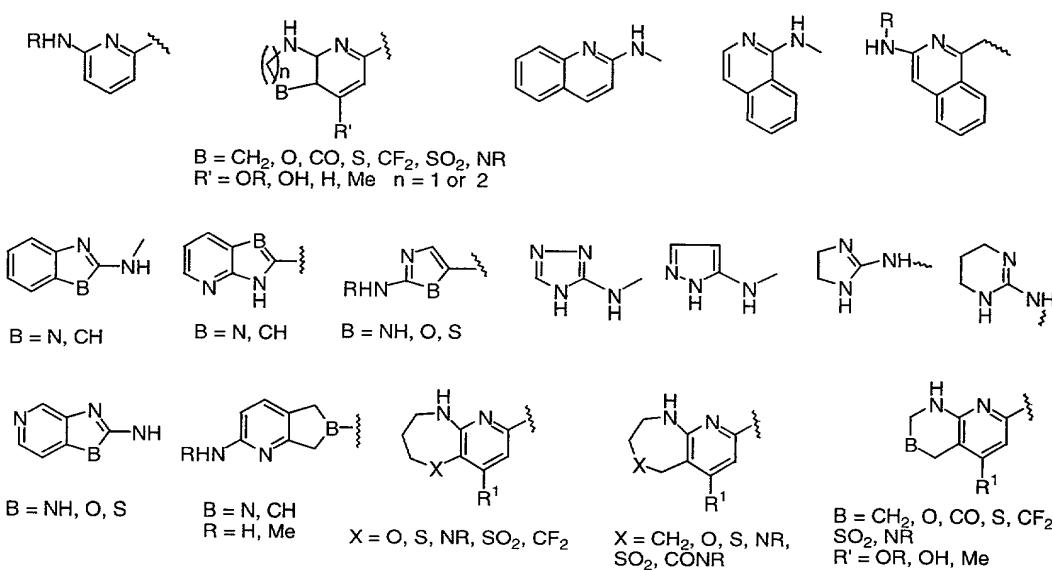
5

8. A compound according to claim 1, wherein



A^1 is selected from the group consisting of :

10



and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

5 9. A compound according to claim 1 selected from the group consisting of:

[2,2-dimethyl-3-oxo-8-[3-(pyridin-2-ylamino)propoxy]-2,3-dihydro-1,4-benzoxazepin-4(5H)-yl]acetic acid;

10 1,2,3,4-tetrahydro-6-[3-(2-pyridinylamino)propoxy]-2-isoquinoline-propanoic acid;

{5-[3-(pyridin-2-ylamino)propoxy]-1H-indol-1-yl}acetic acid;

2,3-dihydro-5-[3-(2-pyridinylamino)propoxy]-1H-indene-2-acetic acid;

15 2,3,4,5-tetrahydro-8-[3-(2-pyridinylamino)propoxy]-1,4-benzoazepine-4-acetic acid;

1,2,3,4-tetrahydro-1-oxo-6-[3-(2-tetrahydropyrimidinyl)amino]-propoxy]-2-isoquinolineacetic acid;

20 3,4-dihydro-7-[3-(2-pyridinylamino)propoxy]-2-H-1-benzopyran-3-acetic acid;

(6-{[3-(pyridin-2-ylamino)propyl]thio}-1,2,3,4-tetrahydronaphthalen-2-yl)acetic acid;

1,2,3,4-tetrahydro-6-[2-(5,6,7,8-tetrahydro-1,8-naphthyridyl)-aminoethoxy]2-naphthaleneacetic acid, and pharmaceutically acceptable salts, isomers, enantiomers, tautomers, racemates and polymorphs thereof.

5

10. A pharmaceutical composition comprising a therapeutically effective amount of a compound of Claims 1-9 and a pharmaceutically acceptable carrier.
- 10 11. A method for treating conditions mediated by the $\alpha_v\beta_3$ integrin in a mammal in need of such treatment comprising administering an effective $\alpha_v\beta_3$ inhibiting amount of a compound of Claims 1-9.
- 15 12. The method according to Claim 11 wherein the condition treated is selected from the group consisting of tumor metastasis, tumor growth, solid tumor growth, angiogenesis, osteoporosis, humoral hypercalcemia of malignancy, smooth muscle cell migration, restenosis, atheroscelerosis, macular degeneration, retinopathy, and arthritis.
- 20 13. A method for treating conditions mediated by the $\alpha_v\beta_5$ integrin in a mammal in need of such treatment comprising administering an effective $\alpha_v\beta_5$ inhibiting amount of a compound of Claims 1-9.
- 25 14. The method according to Claim 13 wherein the condition treated is selected from the group consisting of tumor metastasis, tumor growth, solid tumor growth, angiogenesis, osteoporosis, humoral hypercalcemia of malignancy, smooth muscle cell migration, restenosis, atheroscelerosis, macular degeneration, retinopathy, and arthritis.
- 30 15. A method of treating neoplasia in a patient in need thereof comprising administering a compound of Claims 1-9 in combination with a chemotherapeutic agent.

16. A compound of Claims 1-9 that selectively antagonizes the $\alpha_v\beta_3$ and the $\alpha_v\beta_5$ integrins, over the $\alpha_v\beta_6$ integrin.

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